



# Town Brook Dam Removal and Fish Ladder

Plymouth, Massachusetts

## Highlight: Town Brook

Town Brook is a 1.5-mile stream that runs from the Billington Sea, a 269-acre freshwater pond, to Plymouth Harbor in Plymouth, Massachusetts. Historically, the river provided important anadromous fish runs for alewives (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), and rainbow smelt (*Osmerus mordax*). Herring were an important food for the native Americans and are also believed to have sustained the early European settlers. According to legend, Squanto showed the Pilgrims how to plant herring as fertilizer with corn seeds, likely using fish from Town Brook.

Today, blueback herring and alewives are still an important component to sport and commercial fisheries in New England. However, due to a variety of factors including overfishing, habitat degradation, and urban development, anadromous fish populations severely declined.

Beginning with the Billington Street dam in the 1790's, six dams were constructed on Town Brook, contributing to declines in fish populations. While each dam has been outfitted with fish ladders, two were in such disrepair that fish were still unable to migrate upstream unaided.

Town Brook currently supports an annual run of approximately 7,000 herring, which is far below the stream's estimated capacity. In efforts to save the dwindling anadromous fish run, the Massachusetts Division of Marine Fisheries had for the past 15



Billington  
Street Dam  
and fishway

years been capturing and trucking fish around the dams, releasing them at their spawning grounds upstream.

With assistance from the NOAA Community-based Restoration Program, the Town of Plymouth took the lead to restore fish passage on Town Brook through replacement of a fish ladder at the Newfield Street Dam and through a dam removal and stream restoration project at the Billington Street Dam. At Newfield Street, the lower 30 feet of the notched fishway had deteriorated and was replaced with an aluminum Alaskan Steeppass Fishway in 2001. The Billington Street dam was constructed in the 1790's on Town Brook as a foundation for the Holms and Packard Anchor Forge mill. The mill burned down in the 1960's leaving the 70-foot long and 110-foot wide earthen dam behind. The brook was formerly carried through a 4 by 67-foot metal culvert under the dam and emptied into a nonfunctional fish ladder. Lead and asbestos were found at the site and the contaminated soils

## GOAL

**Restore  
anadromous fish  
runs for alewife,  
blueback herring,  
and rainbow smelt**

## CONTACT

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**National Oceanic and  
Atmospheric Administration**

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had to be removed prior to deconstructing the dam. Both the dam and the non-functioning fish ladder were removed in 2002 as part of a training exercise by the 368th Engineering Battalion (Heavy) of the US Army Reserves. The stream was then regraded and cobbles were added to mimic the downstream and upstream habitat and to recreate riffles and pools. Native riparian and wetland vegetation was planted along the restored stream in the spring of 2003.

Restoring fish passage at Town Brook will allow alewives and blueback herring to reach historic spawning grounds and restore habitat for resident fish and birds. Removing the Billington Street Dam was the first dam removal in Massachusetts for anadromous fish passage and provides a precedent for future dam removals for fish passage in the state.

Throughout the project, community support was important in promoting stewardship and involvement. Students from the Plymouth Community Intermediate School News Team were actively involved in video-documentation of the project's progress and an intermediate school student monitored the brook before and after the dam removal as part of a science fair project. High school and college students also helped to remove debris from the stream. And, local Boy Scouts maintain a covered footbridge near the Billington Street Dam.

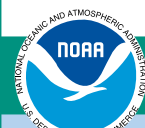
The Town Brook corridor was highlighted during a Biodiversity fair in 2001, where visitors were informed about the importance of the river to the survival of the Pilgrims. The Town of

Plymouth maintains a nature trail named the Pilgrim Trail along Town Brook and hopes to create an educational walkway along the stream.

The total cost for the project was approximately \$550,000. This project is part of a larger effort to restore anadromous fish runs on Town Brook and create a green-way with an integrated nature trail stretching from Billington Sea to Plymouth harbor. Additional anadromous fish run restoration projects are currently being considered at Jenny Grist Mill and Brewster Gardens.



US Army Reserves help remove the Billington Street Dam



## PROJECT PARTNERS:

Town of Plymouth  
American Rivers  
Battelle Marine Science Laboratory  
Coastal America  
FishAmerica Foundation  
Inland Fisheries Committee

Massachusetts Coastal Zone Management  
Massachusetts Division of Marine Fisheries  
Massachusetts Watershed Initiative  
Massachusetts River Restore Program  
National Resource Conservation Service

US Environmental Protection Agency  
Town Brook Alliance  
US Army Reserves  
US Fish and Wildlife Service